ABSTRACT OF THE DISCLOSURE

A reprogrammable data communications system for use in a gas or oil well borehole is disclosed. The borehole includes a casing and a piping structure therein and at least one downhole equipment module located therein. The system provides for data and control signals to be coupled to the casing and piping structure by a surface modem and transmitted to the downhole equipment located in the downhole equipment modules. The downhole equipment modules include a downhole modem that is coupled to the casing and piping structure and receives the transmitted data and command signals and recovers the transmitted data and commands therefrom. A downhole processor is coupled to the downhole modem and receives the data and commands from the downhole modem and stores the data and commands in retentive memory that is coupled to the downhole processor. In this way, the downhole processor can be reprogrammed with new algorithms and communications parameters. In addition, the surface modem can include one or more surface processors that are coupled to one or more retentive memory devices. One or more of the surface processors and the associated retentive memory device can be coupled to a data source and reprogrammed with new algorithms and communications parameters from a data source that may be the internet, a company intranet, or one of the surface processors.